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Gloom and Hope

The R&D Boom: Will the Money Keep on Growing?

There are two main lines of thought in Washington science-policy circles about the durability of the federal financial boom in research and development, now in its third year and heading for a record annual budget of over \$50 billion in 1985.

The pessimistic one foresees the money continuing to increase, perhaps even rapidly, but it fears that colossal new projects in defense and space will consume the growth and then some, to the detriment of the federal civilian R&D budget. Star Wars, the permanently manned space platform, the super computer, and stealth aircraft are seen as insatiable competitors for federal R&D money.

The optimistic view says that somehow or other spending increases with plenty for all will continue—even with

final report and recommendations of the President's Commission on Industrial Competitiveness, of which Keyworth is a member, and John Young, President of Hewlett-Packard, is the Chairman. The Commission is expected to make a strong pitch about the importance of universities as training grounds for industrial scientists and engineers.

• In Congress and in the Administration, support is growing for a resumption of federal construction funds for university laboratory buildings. In the manner that such things work, the academic lobbies now rarely fail to make a plea for such money in Congressional testimony; research agencies add to the drumbeat by telling Congress of great unmet needs, and the legislators, in turn, are warmly interested in opportunities for providing brick-and-mortar evidence of effective service in Washington.

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House Science Chairman, Keyworth Swap Pork-Barrel Views—Page 5

the big projects, deficits, and so forth—because the political leadership is hooked on R&D as good economic medicine. Missionary work in behalf of research has been so effective, this camp holds, that the presidential election is irrelevant to R&D budgets; they'll all keep going up, whatever the outcome.

In assessing the reality of these forecasts, it may appear that the cheerful forecast is composed mainly of hope, faith, and indifference to budget politics. In contrast, the fearful scenario was backed up last March by a Congressional Budget Office study, *An Analysis of the President's Budget Proposals for Fiscal 1985*, which forecast a coming decline in "real" money for civilian R&D. But behind the scenes there are some influential stirrings in behalf of assuring that academic basic research continues to receive a plump share.

• At the White House Science Office, the finishing touches are now being put on what's called the University Study—essentially a care-and-feeding analysis of academic R&D. The study is headed by David Packard, Chairman of Hewlett-Packard, who's an old California crony of Ronald Reagan. It's expected to push a point that Presidential Science Adviser George A. Keyworth II has been arguing in recent months: That all federal agencies that utilize technology, which means all of them, should be required to provide significant support for university-based science.

• Also in the works, and due out by January, is the

In Brief

What does Presidential Science Adviser George A. Keyworth II think of the Congressionally initiated Small Business Innovation Research program, which requires federal agencies to move toward eventually awarding 1.25 percent of their external R&D funds to small-business firms? "Money down the sewer," he told a questioner following a talk he gave last week at the Wilson Center, in Washington.

NSF's latest manpower projection, extending to 1987, foresees serious shortages in only three of 21 science and engineering specialties—*aeronautical/astronautical engineers, computer specialists, and electrical/electronic engineers*. The projection is contained in a special report, NSF 84-304, available without charge from NSF, Division of Science Resources Studies, 1800 G St. Nw., Washington, DC 20550.

Richard D. DeLauer, the Pentagon's chief of research and engineering, was widely reported last spring to be voluntarily on the way out of Washington by summer's end. But he's still on board. It's now said that he's agreed to remain until the end of the year.

How's Erich Bloch doing as the new head of NSF? The word from the staff is that his style reflects his industrial management background. "If something's to be done," an NSF veteran reports, "Bloch wants to know how and by whom, and in two pages, not 45."

... Little Left to Squeeze in Civilian Funds

(Continued from page 1)

With Congress gaga over high tech—a record number of bills dealing with that subject in one way or another was introduced in this session, according to the Congressional Research Service—the legislators are pushovers for the argument that science and prosperity are close kin. Apart from some exceptionally dubious items in the Defense Department's glutted R&D budget, Congress trimmed no significant R&D item in the Administration's budget this year. The National Science Foundation, an object of increasing pork-barrel interest among the legislators, now regularly receives at least what the Administration requests—which this year amounted to a 12-percent increase. And, in large amounts, the National Institutes of Health continues to break through the standstill budgets offered by the White House (SGR Vol. XIV, No. 15).

What's evident to the analysts of the current prosperity in university-based and other civilian research is that it was mainly accomplished with virtually no increase in the federal government's total spending on civilian research. Developmental and demonstration projects, mainly in the Department of Energy, were severely cut, and much of the "savings" were redeployed to basic research. The result is that in current dollars, federal support of basic research rose from \$6.2 billion in fiscal 1981 to about \$7.7 billion this year.

There's little left to squeeze out of the civilian budget, which accounts for the casting about for new veins of federal finance for academic science. Where might they be? In public addresses, Keyworth often notes, in questioning tones, that the federal government's own laboratories absorb about one-third of the federal R&D budget, and that one out of six of the nation's scientists and engineers is employed in those establishments—with little payoff, he says, for industrial competitiveness. Apart from the buildup that's been experienced in the weapons labs, most of the federal establishments have already gone through a severe squeeze. A Reagan lame-duck Administration might go for broke and cut them even further in one final grand rampage of budget slashing. But Congress must return two years later to face the voters, and therefore can be counted on to protect these big payrolls from obliteration.

DoD: 70% of Federal R&D

Defense dominates federal R&D spending to an extent that's not generally realized.

According to an analysis by the Congressional Research Service (CRS), the Administration's defense R&D request for fiscal 1985, "at \$36.9 billion, constitutes almost 70 percent of the federal R&D budget, and is an increase of 102 percent over the FY 1981 level.

"But in comparison," the CRS continues, "support for civilian R&D, at \$15.7 billion, constitutes 30 percent of the FY 1985 budget request for R&D, an increase of about 2 percent over FY 1981."

The CRS points out, however, that civilian R&D spending has been reoriented toward basic research. "In terms of constant dollars," the analysis adds, "federal support for civilian basic research increased about 21 percent from FY 1981 to FY 1985 . . . but federal support for civilian applied research decreased 11 percent over the period and support for civilian development decreased by 50 percent."

The attention therefore is turning to sources of new money for academic science. Industry, for all the attention it's getting from a few blockbuster deals with universities, is not destined for a major role in financing science on campus. Its support has risen in recent years, but apparently has topped out at around five percent of university spending on basic research; some say it's less than that.

If substantial amounts of new money are to flow into universities laboratories, there's only one real source to tap—the US Treasury. That's regarded as a basic fact, on Capitol Hill, in the research agencies and in the White Science Office. While the pessimists are warning that growth will be blocked by military demands and deficit-reduction pressures, the R&D policymakers are confident that political reverence for science and technology will make the difference.—DSG

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Q & A: Big Academe's Washington Representative

The Association of American Universities is rich academe's lobby in Washington. Its membership of 50 American and two Canadian universities consists mainly of big research-oriented institutions, with a few small fry included. Served by a politically knowledgeable staff, the AAU has long been one of the best-connected and most influential higher-education outposts in the capital. Since April 1983, with the arrival of Robert M. Rosenzweig as AAU President, the Association has been even more active than usual in representing the interests of its members. Rosenzweig came to the post directly from a decade as Vice President for Public Affairs at Stanford University. He was interviewed by SGR on September 21, with emphasis on the recent virulence of academic pork-barrelling on Capitol Hill—a development strongly opposed by the AAU. Following is the transcript, edited by SGR:

SGR. *This has been a big year for individual universities going directly to Capitol Hill to get money for buildings and other big projects.*

Rosenzweig. I think there's actually been less successful activity than many people realize.

SGR. *Schlossberg-Cassidy [a Washington lobbying firm—SGR Vol. XIII, No. 19] just got \$19 million for a new engineering center at Boston University.*

Rosenzweig. There are some large, successful cases. But there are also a number that have been included in one appropriations bill and then knocked out by the other house.

SGR. *But Columbia and Catholic universities got their money [\$20 million for chemistry and \$14 million for materials research buildings, respectively].*

Rosenzweig. That's right. I think the system for awarding money is crumbling around the edges. But it hasn't yet broken at the core. I know of a number of cases in which university presidents have said they won't do this. They've been asked by their Congressmen what they want, and they decline to participate in that game.

Attractions for Congress

SGR. *Out of moral scruples?*

Rosenzweig. Out of a sense that in the long run they stand to lose more than they can gain. Out of a sense of community, which I think is very real. I don't want to tell you who they are, but they are real cases. I don't know what to do about the problem [of lobbying for direct appropriations]. There's a kind of a paradox in which the cause of the problem is, to a significant degree, the absence of regular ways of getting [construction money]. But the practice [of pork-barrel politics] is going to make it less likely that we'll ever get regular ways of getting that kind of money. This is all too attrac-

tive to members of Congress. It's the way they naturally like to behave. The fact that they, by and large, refrain from behaving that way is by no means inherent to the system. In fact, just the opposite is inherent to the system. If they come to like this way of doing business, why on earth should they establish large programs for competitive, peer-reviewed projects?

SGR. *The AAU membership isn't of one mind on this. Mike Sovern [President of Columbia University] did not turn his back on a chemistry building that came straight out of Congress.*

Rosenzweig. That's correct.

SGR. *Is there an AAU position on getting money that way?*

Rosenzweig. There's an AAU position that we passed last year. It's that it's a bad thing to do. That's still the overwhelming position of the members. But there are some who feel otherwise. Northwestern has a project in the Interior Department appropriation for \$26 million—it would actually come through the Department of Energy—for a science and engineering building.

SGR. *Some of the lobbyists who bring home this mon-*
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The Big Ones of Academe

The following institutions are members of the Association of American Universities:

Brown	U. of Missouri
Caltech	U. of Nebraska
Case Western Reserve	NYU
UC Berkeley	U. of N. Carolina
UCLA	Northwestern
UC San Diego	Ohio State
Carnegie-Mellon	U. of Oregon
Catholic U. of America	U. of Pennsylvania
U. of Chicago	Penn State
Clark U.	U. of Pittsburgh
U. of Colorado	Princeton
Columbia	Purdue
Cornell	U. of Rochester
Duke	USC
Harvard	Stanford
U. of Illinois	Syracuse
Indiana U.	U. of Texas
U. of Iowa	Tulane
Iowa State	Vanderbilt
Johns Hopkins	U. of Virginia
U. of Kansas	Washington U.
U. of Maryland	U. of Washington
MIT	U. of Wisconsin
U. of Michigan	Yale
Michigan State	McGill U.
U. of Minnesota	U. of Toronto

... Present System Has Produced Good Results

(Continued from page 3)

they argue that they are making money appear that otherwise wouldn't be appropriated.

Rosenzweig. That may be so in some cases, but not in others. But even if it were true that every project approved in this way came from incremental funds—which is implausible—I would still say that this way of operating the system is far more damaging than could be justified by any incremental funds. If a scientific facility is nothing more than a public work, put it in the public works bill. Let them trade that way. Bring it out in the open. It's disingenuous, at best, to pretend that you're making science policy this way.

SGR. Since good science usually gets done in these buildings, regardless of their political origins, why does it matter, if the net effect is beneficial for the country's scientific enterprise?

Rosenzweig. It matters if it has the effect of changing substantially and systematically the way in which decisions are made. Because I don't think there's any other decision-making system that's going to produce results as good, on balance, as the one we've used for the last 30 years. I don't think you can limit this way of making decisions to facilities alone. Once you get into the trading mode for making scientific decisions—and I really insist that these are scientific decisions, whatever other aspects they have associated with them—the fundamental question is what kind of science is going to go on in those facilities. The answer to that is that nobody knows. Some will be good. Some will be as good as it would have been under the old system; sure, Columbia would have competed well. And some will be not as good.

Ups and Downs in Academe

SGR. The have-nots argue that the already-rich institutions—the AAU membership, in other words—are in a superior position for competition. They say that the system you endorse locks them out permanently.

Rosenzweig. That's not true. It is hard to move up. It's not impossible, but it ought to be hard. It ought to be hard in the sense that the tests are real tests of quality.

SGR. But a place that already has the quality is in a stronger competitive position.

Rosenzweig. I've seen the system operate in too many ways to believe that's a wholly fair description of the system. Look at a place like UCLA, which was not a very distinguished institution as recently as the 1960s. It has moved up very substantially in a relatively short period of time. Stanford, too—though you might say that was in an earlier period and there were more resources available; but still, it made a significant move. So did UC San Diego.

SGR. The top 25 recipients of federal money for universities haven't changed much in two decades.

Rosenzweig. How much should they change?

SGR. Quite a few aspiring places, Catholic University, for example, say they can't crack into the system by conventional means. Is their assessment correct?

Rosenzweig. I don't think so. They can crack in. It's difficult, but they can do it. But doesn't it really depend, finally, on how much money is available? Look at the institutions that are prominent on the NIH award list, for example. That includes the same set of institutions that does well in NSF competition. But it's much larger. There's a lot more [NIH] money to go around [NIH is budgeted this year for about \$4.5 billion; NSF for \$1.3 billion], and there's much more movement in that list. It's not impossible to move up; it certainly isn't impossible to move down. Columbia went way down in a number of fields in the '50s and the '60s. And it's only just recently been building itself up.

Help for the Have-Not?

SGR. How do you think the AAU membership would respond to a resumption of the program Lyndon Johnson had for a time, the Centers of Excellence Program, to build up the second rank of universities?

Rosenzweig. I don't know. But my own sense is that the system doesn't now need a great deal of expansion. Effective competition ought to be possible by programs, departments, or schools within institutions that find themselves with energetic leadership and perhaps favorable local circumstances. They can build a nucleus of quality. But so far as expanding the number of distinguished performers—there's always room for distinguished performance. But I don't see that as a major goal right now.

SGR. Do you get a sense that Congress is looking more favorably on a resumption of general appropriations for construction of laboratories and other campus facilities?

Rosenzweig. I do. It could run head-on into budget limitations, but there's a growing recognition that there's a real problem there. Mr. [William H.] Natcher [D-Ky., Chairman of the House Labor, Health and Human Services, and Education Appropriations Subcommittee] put \$50 million in the Department of Education Appropriation for Title VII of the Higher Education Act—that's for facilities. He did that explicitly for the purpose of being able to say to members who came to him with individual projects for their constituents, "Take it over there and compete for it." [The provision has passed the House; to survive, it will have to be accepted in conference by the Senate.]

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Keyworth and Fuqua Volley on Pork-Barrel R&D

Congressional pork-barrel raids on the R&D budget have evoked a caustic exchange of letters between senior Administration research officials and a recently successful raider—Rep. Don Fuqua (D-Fla.), Chairman of the House Science and Technology Committee.

The Administration brass obliquely accused Fuqua of subordinating "expert review" of R&D spending to "narrowly based political considerations." And he responded, in effect, that R&D spending is too important to be guided solely by single-issue technocrats.

The Administration letter, on White House stationery, was signed by George A. Keyworth II, the President's Science Adviser; Erich Bloch, newly appointed Director of the National Science Foundation; Richard DeLauer, Defense Under Secretary for Research and Engineering, and Alvin W. Trivelpiece, Director of the Department of Energy's Office of Energy Research—a frequent target of Congressional raiders.

The exchange originated in events of last spring when Fuqua was at the center of a series of baroque legislative maneuvers that eventually provided \$7 million for a computer center at Florida State University, which is in his district. Though the money is to come from the budget of the Department of Energy, over which Fuqua's committee holds a great deal of legislative authority, DOE had not fully approved the venture. Florida State's good fortune thus came mainly from Capitol Hill, and not through the agency review process that the Administration's R&D managers most of the time deem sacred.

Invoking high principle, Keyworth and company, in a letter to Fuqua dated August 10, declared that "Today as never before, the Nation is united in the effort to ensure success in the competitive era we face. Both the Congress and the Administration," they wrote, "have given strong and sustained support to the US science and technology base as an essential underpinning to this enterprise."

Then getting on to the issue bothering them, they asserted that "Orderly execution of a science, engineering, and technology program requires that each component be carefully reviewed by experts, both for scientific excellence and for programmatic appropriateness. During the last year, many members of the Congress, as well as eminent scientists, engineers, educators and industrialists, have reaffirmed the importance of such systematic review, and have eschewed disruption of this important but delicate national undertaking by narrowly based political considerations."

They concluded with, "We heartily endorse these efforts to maintain the integrity of the Nation's science, engineering, and technology program and renew our personal commitment to expert review as an essential component."

Fuqua's response, dated September 17, was marked by the same snotty tone as the missive he received. Addressed to Keyworth, and noting the commitment of "you and your distinguished colleagues" to "expert review as an essential component of the Federal government's science, engineering and technology programs," the Chairman's letter continued:

"I certainly subscribe to this concept in all applicable cases . . . I do wish, however, to make my view clear with regard to your comment about 'narrowly based political considerations.' Whether it is the improvement of science and mathematics education, the training of new generations of scientists and engineers, the fostering of regional and national economic development, or the construction of a major scientific facility, such socially complex matters must, in my view, be considered in a broader decision-making context. It is the genius of our political system to provide for the many and diverse objectives of our people.

"The Members of Congress," Fuqua continued, "as the most direct representatives of the people, have not only the desire but the constitutional duty to take into consideration all of those objectives."

What must noted is that Keyworth and Fuqua have odd track records on the subject of "expert review." In February 1983, with no prior public discussion or expert review, Keyworth announced plans to establish a National Center for Advanced Materials Research at the Lawrence Berkeley Laboratory. Chairman Fuqua didn't care for that, and under pressure, the Lawrence scheme was retro-reviewed and then greatly whittled down.

A few months later, Chairman Fuqua was sputtering with outrage when a couple of special items—research buildings for Columbia and Catholic universities—were sneaked into his own Committee's authorization bill during floor debate. Since Speaker O'Neill, at the suggestion of the Bishop of Boston, was pushing the projects, Fuqua refrained from a public fuss. But he got the Speaker and several well-placed chairmen to agree to resist items that hadn't been raised in time for consideration at committee hearings.

However, the issue of agency approval prior to Congressional consideration of R&D projects was left in a limbo—the kind that allows an influential Chairman to deliver the goods for his district and wrap the venture in the high principle of "constitutional duty."—DSG

... New Academic-Industrial Ties Worrisome

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I think there's a much more general recognition of the existence of the facilities problem, and a desire to do something about it. I'd like to see the Administration do something. It may only be symbolic, but it would be worth doing. I'd like to have them propose in the authorizing bills for each of the major research-granting agencies language that would limit awards to projects that have been professionally reviewed.

SGR. The nostalgia for peer review seems to overlook the fact that a great deal of money in the past was not awarded through peer review. The University of Washington, for example, benefited greatly from former Senator Warren Magnuson's influence over appropriations for NIH.

Rosenzweig. Magnuson never, never earmarked a building in an appropriation. What he did was to put money into NIH programs, and the NIH administrators made sure that the University of Washington got some money. It happens that there's a fair amount of quality there. But leave that aside. But it does make a difference how you do things. The maintenance of forms and civilities and decencies really make a difference in the way a society operates.

SGR. The people outside the charmed circle say they are rudely being excluded.

Rosenzweig. Only because they don't have the quality to get into the charmed circle.

The Next Congress

SGR. Do you think the pork-barrel issue will be important in the 99th Congress?

Rosenzweig. Sure. One of the things that has changed is the perception on the part of firms in town that there's money to be made off of this.

SGR. Law firms and lobbyists, the hired guns?

Rosenzweig. Yeah. And that makes a difference in some interesting and troubling ways. I'm not talking about questions of legality or morality or the appropriateness of this kind of behavior. I'm simply looking at the phenomenon and observing that when a firm that is not a part of an [academic] institution is representing an interest of an institution, and the firm's economic well-being depends on achieving that one interest of the institution, it's going to put more weight on it than the institution would if it were operating in its own behalf. And the firm will consequently be willing to do things that the institution might not be willing to do—things that might be subject to the kinds of restraints that come from a more collegial form of operation.

SGR. They say it costs at least \$100,000 a year for a university to hire one of these outfits. What does member-

ship in the AAU cost a university?

Rosenzweig. \$20,000.

SGR. The for-hire lobbyists say that the AAU is their brother under the skin, that you're doing for 50 universities what they do for their individual clients.

Rosenzweig. That's clearly not true. What we're trying to do is put in place programs for which institutions can compete. They say the competition isn't fair. I think it is fair; it just doesn't come out to everybody's satisfaction.

Limited Research Partnerships

SGR. Has the issue of university-industrial partnerships settled down?

Rosenzweig. A couple of years ago, the concern was over the terms of a few large contracts. I don't think that's the problem any longer. There haven't been big new ones recently, and, in retrospect, those that did come along are fairly sophisticated. And I don't think anybody is going to be corrupted by those kinds of arrangements. But I think there are some problems that might be emerging out of the financing arrangements that are being put together now. There's a big difference in the effect on the institution between a research grant or contract with a company and a research limited partnership that's put together by a third party, and in which the institution's role consists of having its faculty persuade investors that there might be some profitable payoff. Lots of places are doing it. They sell shares to limited partners. There's a tax advantage up front, because the money they put up is at risk, and there's a prospect of appreciation if there's a payoff in any of the inventions. Generally, the partnership will get a license to inventions and the right to exploit them.

SGR. Why should that form be more troublesome than any of the other business deals being made by universities?

Rosenzweig. That sort of arrangement raises expectations about return that in most cases are not going to be realized. It puts the institution and its faculty in a salesman position in a way that I don't think is very seemly.

SGR. But every attempt, including one by the AAU, to get universities to agree on guidelines has produced nothing more than recommendations to use common sense and so forth. Why can't there be explicit guidelines that would carry the prestige of an important academic group?

Rosenzweig. I don't think any set of guidelines on which one could get agreement would have enough substantive force to command respect, never mind allegiance, because there are no powers of compulsion. I
(Continued on page 7)

France: New Government Boosts R&D Spending

Paris. With President Mitterrand's new team of "modernists" installed in government, the scientific enterprise here finds itself in a state of grace. Research is full of funds, and, therefore, enthusiasm. The sums are modest by American standards, but the political dynamics are similar—in both countries, the political leadership reposes great faith in R&D as a contributor to economic rejuvenation.

The R&D budget for 1985 has been increased by a real 6.3 percent, which makes it and education the leading growth sectors in national spending. Some 600 new research positions will be created within government research organizations, which is remarkable, given Mitterrand's new-found commitment to Reagan-style cuts in government spending and employment. The new jobs for researchers are coming in a period when, for the first time in 12 years, the number of civil servants will decline.

The good news for R&D was not expected. Symbolized by the franc's slump to between 9 and 10 to the dollar, the economic indicators are almost all mediocre or worse. Last spring, the Minister for Industry and Research, Laurent Fabius, joined the campaign against inflation by canceling \$160 million in research spending. Thus, it was widely considered unlikely that R&D spending would rise from 2.2 percent of GNP in 1984 to the stated goal of 2.5 percent next year. After all, Fabius had previously served as Minister of the Budget, a post in which he had earned a reputation for austerity.

But came late June, and it seemed that Fabius had bright hopes for R&D's coming share of GNP—it might rise as high as 3 percent after 1985, he predicted.

The response of the scientific community was one of mocking incredulity. Some unkind souls put forth a cyn-

ical political explanation for Fabius's optimism: The Minister would soon quit his position and was setting an unobtainable goal to make things difficult for his successor. Three weeks later, Fabius was indeed out of the Industry and Research post. But his removal involved an ascent—to the position of Prime Minister.

At age 38, Fabius is France's first head of government born after World War II. And, though rhetorical affection for research was evident among most of his recent predecessors, Fabius has been speaking out with perhaps unprecedented fervor about the role of R&D. "It is clear," he recently asserted that "scientific research is today seen as the basis for the development and modernization of our economy and our society."

With the Communists having been swept out of Mitterrand's new government, the new Prime Minister makes no bones about his commitment to a model of economic development founded on the creation of high-tech enterprises, venture capital, and the rapid elimination of burdensome low-profit industries. Son of an American mother, Fabius seems to take his bearings more from the Silicon Valley than from the ideological arsenal of the Socialist government he heads.

One of his major policy innovations, just now getting underway, calls for permitting the political opposition to take part in the formulation of science policy—which is a big change for a parliamentary system. The next three-year budget (1986-88) will be prepared by representatives of all parties who wish to participate, he has announced.

Before leaving the Ministry of Industry and Research, Fabius had some successes against France's stubborn problem of duplication in research, an unforgivable luxury in these difficult times. Thus, he combined two major organizations for oceanography—two marine monsters which had previously glared at each other: the Fisheries Institute and the National Center for Exploitation of the Oceans. The merged organizations now come under the title of the French Institute for Research on the Exploitation of the Sea. The mission has been focused on economically relevant activities, such as underwater mining, protection of coastal resources, vessel design, and development of a very deep-diving submarine. The decade-long battles among competing aquatic laboratories were abruptly ended—or at least they have become quieter.

Fabius also provided additional support for France's programs of research directed toward the problems of Third World nations. These efforts, closely linked to France's desire to retain political influence in its former colonial holdings, have been functioning reasonably well in institutions that specialize in tropical research.

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Rosenzweig

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don't think we have serious systemic problems coming from this set of [academic-industrial] relationships. Its potential, at worst, is for far less damage than the potential of the university-government relationship. At least the major institutions are quite sensitive to the issues. But, people are going to misbehave. I don't think that can be changed very much by articulating a set of guidelines. One of the things we're doing is trying to help institutions by collecting information about institutional policies and practices [through an AAU clearinghouse—SGR Vol. XIII, No. 18] and disseminating it to institutions that are facing these problems and want to know how others are handling them.

Grand Agenda Set for House Science-Policy Study

A mammoth agenda that leaves virtually nothing out is shaping up for the two-year study of US science policy that the House Science and Technology Committee plans to begin next year (SGR Vol. XIV, No. 13).

As approved by a meeting September 26 of the 18-member Congressional task force that's to conduct the study—assuming electoral survival—the study will range from the History of American Science and US Science Policy to the problems of Accountability in Research. It will also go into The Role of the Research Universities, Government Responsibility for the Research Infrastructure, International Cooperation in Big Science, and Coordination of Federal Research Programs.

But that's not all. Other agenda items are the Past and Present Government Role in Science Education and the Impact of Science on the Information Age.

Following complaints from social scientists who

had been led to believe that their discipline would be excluded, the agenda has been extended to include the Role of the Social Sciences.

Initiated by Committee Chairman Don Fuqua (D-Fla.) the study is so extraordinarily long and broad that curiosity is growing about the politics of the venture. At this early point, the answer is not clear, but as can be seen from the exchange of letters (Page 5) between Fuqua and much of the Administration's high command for R&D, there are some fundamental differences concerning the policies that should underlie the disbursement of federal R&D funds.

Many touchy matters are involved. For example, in a memo to the Task Force in June, Fuqua said, "I think we may be able to take a careful look at the merits of such issues as multi-year funding and geographic distribution." He added that both have stirred "much discussion and rhetoric, but little careful analysis."

France

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But beyond that small circle, especially in industry, there has been little involvement. Change, however, is on the way.

This year, for the first time, a research budget, \$10 million, has been established within the Ministry of Cooperation and a permanent council has been appointed to foster cooperation with other government agencies. These include the Ministry for Foreign Affairs, which is usually keen to spend research money in "difficult" countries, and the Ministry of Research, which has had trouble enlisting its research centers in projects of interest only to far away developing countries.

At the same time that Fabius was elevated to Prime Minister, his former ministry, Industry and Research, was split in two. An elder statesman of French science affairs, Hubert Curien, emerged as head of the newly created Ministry of Research. Curien was formerly Director General of the National Center for Scientific Research (CNRS), which is akin to the National Science Foundation plus a nationwide network of laboratories;

he was in charge of research planning under President Giscard d'Estaing, and he served for six years as head of the French space agency.

Curien has many favorable qualities for leading a scientific establishment that has so far been indifferent to the economic realities of the country. He is professionally respected, calm, and friendly. But he is also very secretive. When he decides to take an important step, he usually doesn't announce it until the very last moment. At present, the guess is that he's working on measures to increase the mobility of researchers between government and industrial laboratories. But no one knows for sure.

The government's affection for science extends to the stated goal of making "scientific culture an integral part of our times." This is an uncertain proposition in a country where a recent survey found that the public is cool to televised popularizations of science. Nonetheless, the struggle goes on. The government is attempting to give the personal computer a grand cultural status. Jack Lang, the brilliant Minister of Culture, has put up \$10 million in support of his contention that "we must reconcile the artistic and scientific culture." The public response has been negligible.—FS

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